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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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CORNING INCORPORATED
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CORNING, NY 14831

EXAMINER	
NGUYEN, PHU HOANG	
ART UNIT	PAPER NUMBER
1731	
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07/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/688,168	CHAN ET AL.	
	Examiner	Art Unit	
	Phu H. Nguyen	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17 and 28-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 28-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/11/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 35 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In the Remarks filed on 6/11/2007, applicant pointed out 4 paragraphs (page 2, paragraph 0008, page 8, paragraph 0035, page 10 paragraphs 0040 and 0041) that recites the article is heated, then cooled to about 100 degree C then fired. However, the content of page 2, paragraph 008 only recites that the gas is cooled to allow for condensation and isolation of the oil-based components; it does not mention that the article is cooled. The content of page 8, paragraph 0035 and page 10, paragraph 0041 does not mention that the article is cooled. The content of page 10, paragraph 0040 only refer to cooling the article to 100 degree C after heating in the process of setting up the parameters or setpoints necessary for determining the necessary gas temperature and velocity as well as microwave radiation and not the process of forming a ceramic article.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-11, 13-15, 17 and 28-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xun (U.S Patent No. 6287510) in view of Lundsager (U.S Patent No. 4900698) and further in view of Gheorghiu et al. (U.S Patent No. 5263263).

Regarding claims 1-3, 17 and 28-30, Xun discloses a method for forming a cellular monolith bodies such as honeycombs (column 9, line 26-28) comprising: forming a mixture of powder materials, binder, solvent for the binder, non-solvent then mixing and plasticizing, and shaping to form a green structure. The green structure is dried and fired (column 1, line 63 to column 2, line 4). Xun also discloses examples of the non-solvent are oils (column 5, line 49-51) (corresponding to the claimed "an oil-based component" recited in the instant claim 1) and the preferred binders used are aqueous based (column 4, line 37-38) wherein the aqueous based solvent can be water (corresponding to the claimed "the aqueous solvent is water" recited in the instant claim 28) (column 4, line 21-24). Xun further discloses typical cellulose ether binders are methylcellulose and/or methylcellulose derivatives (corresponding to the claimed "the binder is a cellulose ether binder" recited in the instant claim 29 and the claimed "the binder comprises methylcellulose or a methylcellulose derivative" recited in the instant claim 30) (column 4, line 49-64). Furthermore, Xun discloses the firing conditions where oils and cellulose ether binders are removed in the slow heating of the temperature

region of about 100-500 degree C of the firing cycle (column 9, line 46-48); especially the lower temperature (<200 degree C) is the evaporation phase which is the major way for the organics to escape (column 10, line 4-6). Then structures are heated to temperature greater than about 500 degree C. Xun did not expressly disclose the removing of a portion of the oil based component from the green ceramic article by flowing a heated gas longitudinally through the green ceramic article in the heating cycle. Lundsager discloses oil is removed by heating in a forced air oven at 100 degree C and removal by heating and removal by extraction give essentially the same results (corresponding to the claimed "by flowing a heated gas" recited in the instant claim 1) (column 5, line 14-16). Furthermore, Gheorghiu discloses drying of ceramic honeycomb ware by flowing a heated gas longitudinally through the green ceramic article (column 6, line 57 to column 7, line 12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove oil based component from the green ceramic article by flowing a heated gas longitudinally through the green ceramic article since drying with flowing a heated gas more efficient than drying with stagnant heated gas (figure 4 of Gheorghiu).

Regarding claims 4-5, Gheorghiu teaches the effect of temperature and velocity of heated gas on drying rates (figure 4). Changes in temperature, concentrations or other process conditions of an old process within the broad teach of the prior art does not impart patentability in the absence of un unexpected result. *In re Aller*, 220 F.2d 454, 105 USPQ (CCPA 1955). Where the general conditions of a claim are disclosed in

the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 6, Xun discloses paraffinic oils that inherently have a flash point and by definition flash point of a flammable liquid is the lowest temperature at which it can form an ignitable mixture with oxygen in air. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to heats the green ceramic article below the flash point of the oil based component.

Regarding claims 7-11, air is a readily available gas, nitrogen is a very common process gas for its inert property and Xun discloses oils and cellulose ether binders are removed in the slow heating of the temperature region of about 100-500 degree C of the firing cycle (column 9, line 46-48) that overlaps the ranges of claims 7 and 11. Also, changes in temperature, concentrations or other process conditions of an old process within the broad teach of the prior art does not impart patentability in the absence of un unexpected result. *In re Aller*, 220 F.2d 454, 105 USPQ (CCPA 1955). Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 13-15, Xun discloses the removal of organics can be characterized by three simultaneous pathways in order of increasing activation energy: evaporation, oxidative degradation, and thermal decomposition (column 9, line 60-64) wherein thermal decomposition becomes so fast that it dominates the process at temperature higher than 300 degree C and slow heating rate is preferred here for

efficient heat transfer (column 10, line 31-37). Since all three pathways are activated at temperature just higher than 300 degree C the oils are typically removed from ceramic structures (corresponding to the claimed "at least 95% of the oil-based component is removed" recited in the instant claims 15 and 33) in the temperature region of about 100-500 degree C (column 9, line 46-49). Accordingly, claims 13-15 are rejected.

Regarding claims 31-34, Gheorghiu discloses the green ceramic article is dried (corresponding to the claimed "at least 95% of the oil based component is removed" recites in the instant claim 33) in about 20 minutes in an example with a temperature of the heated air at 100 degree C and velocity of about 5 m/s. Furthermore, Gheorghiu discloses that at higher flow rate of the heated air, one would expect the drying process to speed up (column 6, line 37-53 and figure 4). Therefore, one of ordinary skill in the art at the time the invention was made can adjust the flow rate of heated gas in drying process of the ceramic article as taught by Gheorghiu.

Regarding claims 35 and 36, Gheorghiu further discloses that it is preferred to utilize airflow at a temperature of about 100 degree C in the drying process (column 5, line 40-52). According, claims 35 and 36 are rejected.

Regarding claim 37, Gheorghiu further discloses the green honeycomb article (W, fig. 2) is positioned on a support device such that the longitudinal cells are arranged vertically (axis A, fig. 2) and heated gas is forced out of duct (26, fig. 2) vertically through the longitudinal cells of the green ceramic article (column 3, line 33 to column 4, line 6). Accordingly, claim 37 is rejected.

Claims 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xun (U.S Patent No. 6287510), Lundsager (U.S Patent No. 4900698) and Gheorghiu et al. (U.S Patent No. 5263263) as applied to claims 1 above, further in view of Weich Jr. (U.S Patent No. 4717340). Wiech Jr. discloses recirculation of heated gas after condensation step in the Abstract. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recirculate the gas to increase process efficiency.

Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Xun (U.S Patent No. 6287510), Lundsager (U.S Patent No. 4900698) and Gheorghiu et al. (U.S Patent No. 5263263) as applied to claims 1 above, further in view of Nakajima et al. (U.S Patent No. 4731208). Nakajima discloses recycling the binder materials and fluid to increase process efficiency. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recycle a portion of oil based component to increase process efficiency.

Response to Arguments

Applicant's arguments with respect to claims 1-17 and 28-37 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu H. Nguyen whose telephone number is 571-272-5931. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

P.N 7/3/2007

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